

Single Interlock Pre-Action Valve Electric Release System

FP 400Y - 7M

The BERMAD Model FP 400Y-7M utilizes an elastomeric deluge valve, designed for advanced fire protection systems and the latest industry standards.

The Single Interlock Electric Release is suitable for use in systems requiring that water be kept out of the sprinkler piping until an electric detecting device is activated.

Single Interlock Pre-Action Systems include automatic sprinklers attached to a dry sprinkler piping system, with a supplementary electric detection system installed in the same area. This system admits water into the sprinkler piping upon activation of the detection system. Water is discharged only through sprinklers that have been opened due to excessive heat.

When a Supervised System is required, a pneumatic low pressure supply shall be provided through a proper Air Maintenance Device (AMD-74 or 75), also an anti-flooding feature is provided by utilizing an in-line check valve, which creates an intermediate vented chamber using a Normally Open drip-check.

As an option the 400Y-7M features a visual quarter turn valve position indicator, available with limit switches for remote valve position monitoring.



(for Illustration Only)

Benefits and Features

■ Safety and reliability

- ▢ Time-proven, simple, fail-safe actuation
- ▢ Single-piece, rugged, elastomeric diaphragm seal - VRSD technology
- ▢ Intermediate anti-flooding chamber
- ▢ Obstacle-free, uninterrupted flow path
- ▢ No mechanical moving parts

■ High performance

- ▢ Very high flow efficiency
- ▢ Straight through flow Y-type body
- ▢ Approved for 20 bar / 300 psi

■ Quick and easy maintenance

- ▢ In-line serviceable
- ▢ Quick and easy cover removal
- ▢ Swivel mounted drain valves*

* Not including 2"

Additional Features

- Valve position limit switches
- Local valve position indicator beacon
- Air maintenance device (AMD-74 or 75)
- Water motor alarm
- Pressure alarm device
- Sea water compatibility

Approvals



UL-Listed
Special System Water Control Valves
Sizes 3" - 10"



FM Approved
for Preaction and Refrigerated
Area Sprinkler Systems
Sizes 1½" - 8"



Det Norske Veritas
Type Approval



ABS
American Bureau of Shipping
Type Approval



Lloyd's Register
Type Approval

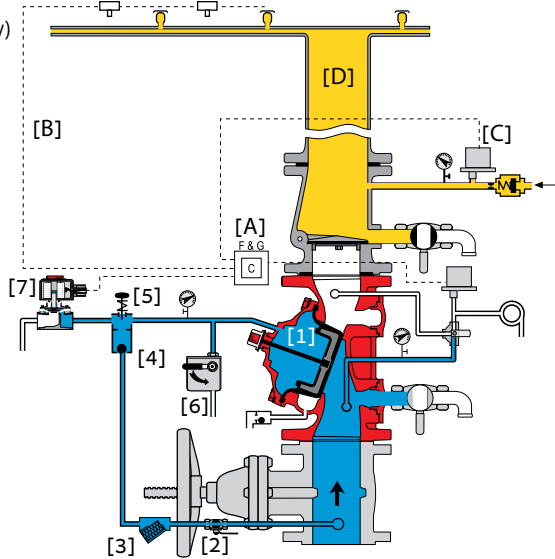
Typical Applications

- Water sensitive material storage
- Computer and electronics rooms
- Libraries / museums & archives

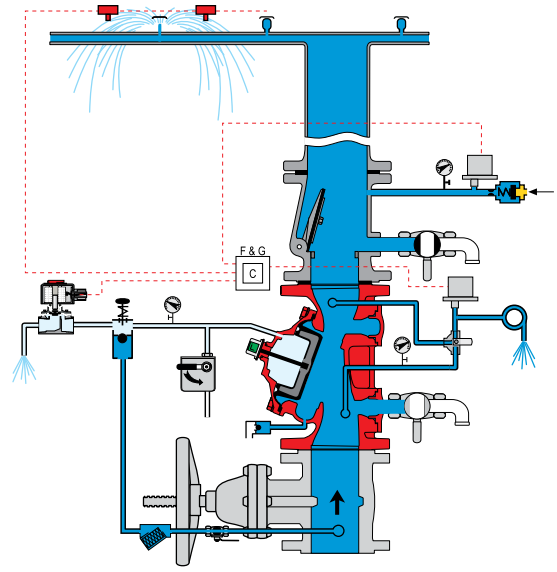


Operation

(for Illustration Only)



Valve Closed (normal conditions)



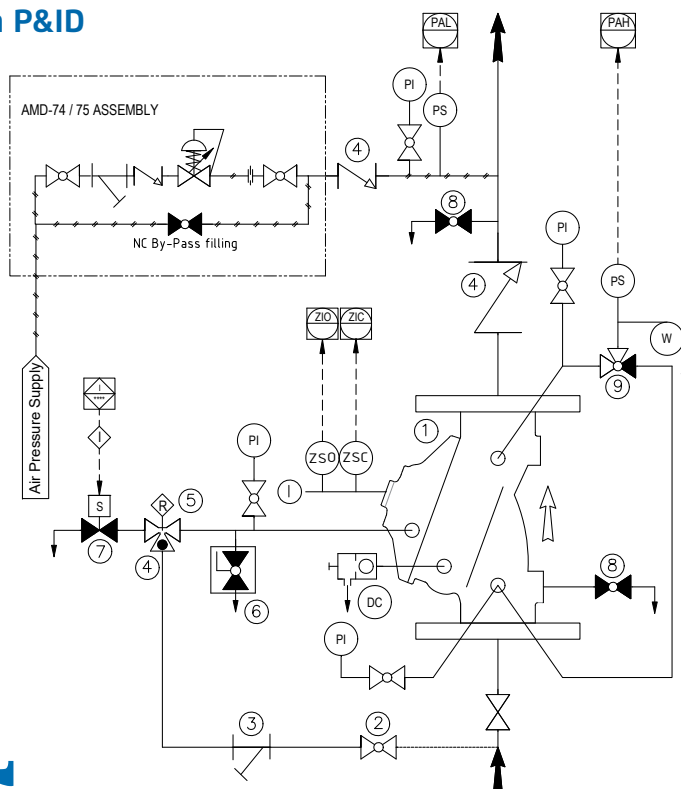
Valve Open (fire conditions)

The BERMAD model 400Y-7M is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens.

Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] and strainer [3], and is then trapped in the control chamber by the manual emergency release [6], check feature [4], of the EasyLock Manual Reset [5], and a closed solenoid valve [7]. The water pressure trapped in the control chamber holds the diaphragm against the valve seat, sealing it drip-tight and keeping the system pipes dry.

Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release, or by the solenoid valve opening in response to the releasing control panel [A]. The control panel energizes the solenoid valve only when the electric heat-detection device [B] has been activated. Once energized and open, the solenoid vents the main valve control chamber, whilst the Easylock Manual Reset check feature prevents water pressure from re-entering. The 400Y-7M pre-action valve latches open, allowing water to flow into the system piping and to the alarm device [9].

System P&ID



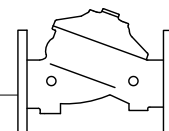
Components

- 1 BERMAD 400Y Deluge Valve
- 2 Priming Ball Valve
- 3 Priming Strainer
- 4 Check Valve
- 5 EasyLock Manual Reset
- 6 Manual Emergency Release
- 7 2-Way Solenoid Valve
- DC Automatic Drip Check Valve
- 8 Drain Valve
- 9 3-Way Alarm Test Ball Valve
- PI Pressure Gauge
- PS Pressure Switch Low (PAL)

Optional System Items

- PS Pressure Switch High (PAH)
- ZS Limit Switch Assembly
- I Visual Indicator
- W Water Motor Alarm
- AMD Air Maintenance Device

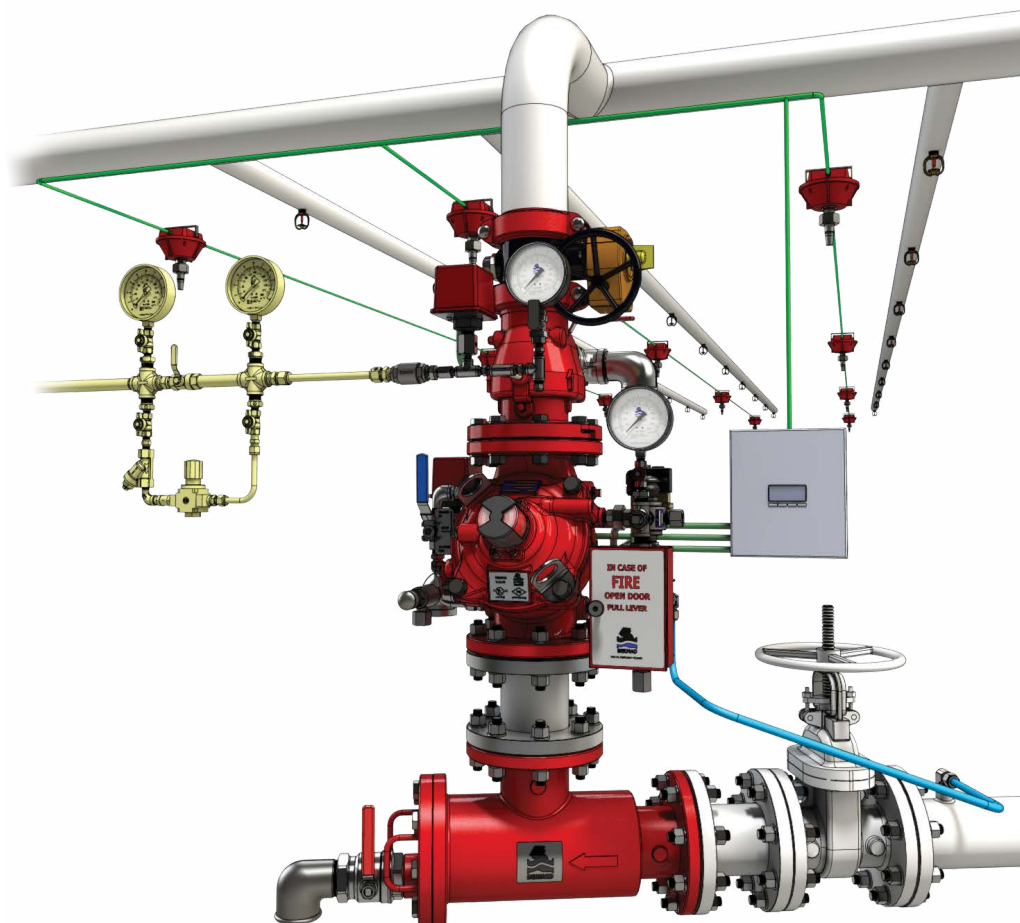
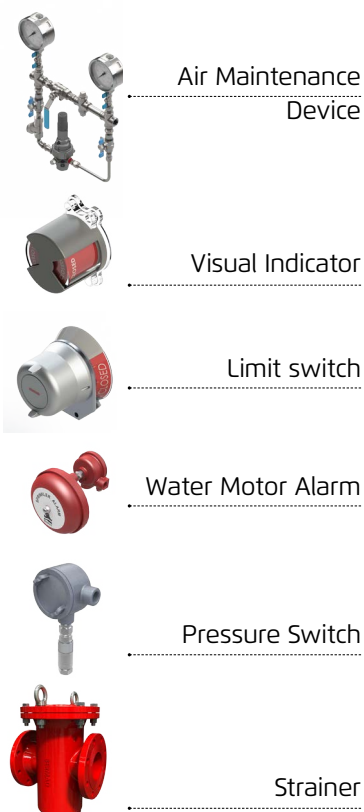
See also Factory Fitted Options under the Valve Code Designations on the last page



System Installation

A typical installation of the BERMAD model 400Y-7M features automatic actuation via a solenoid valve and releasing control panel. Actuation occurs only when the control panel receives an electric signal from the fire-detection system. An inline check valve and drip-check valve create an intermediate vented chamber to ensure against flooding when the valve is closed. An air supply system including an Air Maintenance Device (AMD-74 / 75) with a low Pressure Switch can be provided when a Supervised System is required. When fitted with a limit switch, the valve can send a feedback signal to a remote valve position monitoring system.

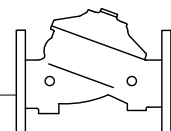
Optional System Items



(for Illustration Only)

Engineering Specifications

The pre action valve shall be UL listed and FM approved, 20 bar/300 psi rated, with a straight-through, Y-type body. The valve shall have an unobstructed flow path, with no stem guide or supporting ribs. Valve actuation shall be accomplished by a single-piece, rolling diaphragm bonded with a rugged radial seal disk. The diaphragm assembly shall be the only moving part. The preaction valve shall include an EasyLock latching check valve with manual reset, a 2-way solenoid valve with a voltage tolerance of 35% below the rated voltage, a Y-type strainer, two ball type drain valves, an automatic drip-check with manual override, 4-inch pressure gauges, and a manual emergency release housed in a stainless steel box. The valve shall be equipped with a protective-covered, dual-color, rotational position indicator, readable from 50 meters, and with two limit switches enclosed in a protective switch box. Removing the valve cover for inspection or maintenance shall be in-line and not require removal of the control trim. The pre-action valve and its entire control trim shall be supplied pre-assembled and hydraulically tested by a test facility certified to ISO 9000 and 9001 standards.



Technical Data

Available Sizes (inch)

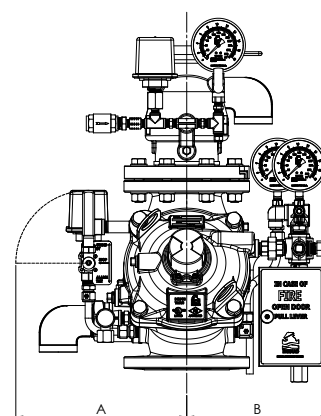
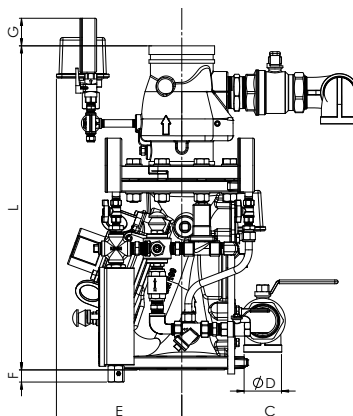
- Flanged - 2, 3, 4, 6 & 8"
- Grooved - 2, 3, 4, 6 & 8"

Pressure Rating

- ANSI #150 - 16 bar / 235 psi
- ANSI #300 - 20 bar / 300 psi
- Grooved - 20 bar / 300 psi

Elastomer

- HTNR - Fabric Reinforced High Temperature Compound - See engineering data



Valve Size	2" DN50		3" DN80		4" DN100		6" DN150		8" DN200	
Unit	mm	in	mm	in	mm	in	mm	in	mm	in
L ⁽¹⁾	450	17.7	555	21.9	595	23.4	775	30.5	965	38.0
L ⁽²⁾	455	17.9	570	22.4	612.5	24.1	800.5	31.5	990.5	39.0
A	279	11.0	339	13.3	347	13.7	400	15.7	430	16.9
B	191	7.5	249	9.8	247	9.7	314	12.4	342	13.5
C	276	10.9	309	12.2	325	12.8	339.5	13.4	355	14.0
E	140	5.5	166	6.5	178	7.0	248	9.8	315	12.4
G	101	4.0	91	3.6	78	3.1	29.5	1.2	-	-
ØD	DN20	¾"	DN40	1½"	DN50	2"	DN50	2"	DN50	2"
Unit	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi
Friction loss ⁽⁴⁾ at 5 m/s - 16.4 ft/s	0.3	4.2	0.51	7.3	0.34	4.8	0.32	4.6	0.37	5.3
Unit	m	ft	m	ft	m	ft	m	ft	m	ft
Leq ⁽³⁾	6	20	17	56	16	52	23	75	37	121
Unit	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb
Weight approx	31	68	48	106	60	131	112	247	179	394

Notes: ⁽¹⁾ Refers to the length dimensions for Raised Face ANSI #150, ISO 16 Flanged, Threaded and Grooved valves

⁽²⁾ Refers to the length dimensions for Raised Face ANSI #300 and ISO 25 Flanged valves

⁽³⁾ Leq (Equivalent Pipe Length) refers to turbulent flow in new steel pipe schedule 40, values given for general consideration only

⁽⁴⁾ Friction Loss values include the downstream check valve

⁽⁵⁾ Exact dimensions for the trim envelope may vary with specific component positioning

Valve Code Designations

FP

6"

400Y-7M

V

C

A5

PR

4DC

NN

PWRI

Category	code
Standard	FP
Seawater	FS

Valve Size	
2"	50 mm
3"	80 mm
4"	100 mm
6"	150 mm
8"	200 mm

Installation	code
Vertical	V
Horizontal	H

Material Body & Cover ⁽¹⁾	code
Ductile Iron ASTM A356 ⁽²⁾	C
Steel ASTM A216 WCB ⁽²⁾	S
Stainless Steel 316 ASTM	N
Nickel Al Bronze C95800	U
Super Duplex Grade 5A	D

Coating	code
Polyester Red	PR
High Build Epoxy	ER
Uncoated	UC

Voltage ⁽³⁾ - Main Valve N.O or N.C	
24VDC - N.C.	4DC
110VDC - N.C.	5DC
110-120/AC - N.C.	5AC

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

Factory Fitted Options	Code
Pressure Switch General Purpose ⁽⁴⁾	P
Ex Proof NEC, Div.1 Pressure Switch ⁽⁴⁾	P7
Ex d ATEX Pressure Switch ⁽⁴⁾	P9
Single Limit Switch General Purpose	RS
Single Ex d Proximity Limit Switch	RS9
Double Ex d Proximity Limit Switch	RSS9
Pressure Gauge Assembly ⁽⁴⁾	6
S.S Glycerin Pressure Gauge Assembly ⁽⁴⁾	6n
Monel Pressure Gauge Assembly ⁽⁴⁾	6m
Ex Proof NEC Class 1 Div 1 Solenoid	7
Ex d ATEX solenoid	9
Water Motor Alarm Assembly ⁽⁴⁾	W
Special Elastomer EPDM	E1
Special Elastomer NBR	E3
Large Control Filter	F
Valve Position Indicator	RI
S.S Solenoid Valve	K
S.S 316 Trim Accessories	N
Stainless Steel 316 Seat	T
Pressure Transmitter ⁽⁴⁾	Q

Notes:

⁽¹⁾ Other materials available see Engineering Data

⁽²⁾ Coated internally and externally

⁽³⁾ FM approved with 24VDC only

⁽⁴⁾ Supplied loose

Notes:

⁽¹⁾ Other materials available see Engineering Data

⁽²⁾ Coated internally and externally

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